AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method of detecting and quantifying a subsurface crack in an article made of high strength non-magnetisable materials after using the article in a high temperature environment, the article exhibiting a crack on a surface, the method comprising the steps of:

(a) brazing the crack using a filler material having an electrical conductivity different from the electrical conductivity of the non-magnetisable materials; and

(b) detecting and quantifying by means of a multi-frequency scanning eddy current system any subsurface cracks that remain beneath the brazed crack after the brazing.

2. (Currently Amended) ~~The method according to claim 1, wherein:~~

A method of detecting and quantifying a subsurface crack in an article made of high strength non-magnetisable materials after using the article in a high temperature environment, the article exhibiting a crack on a surface, the method comprising:

(a) brazing the crack; and

(b) detecting and quantifying by means of a multi-frequency scanning eddy current system any subsurface cracks that remain beneath the brazed crack after the brazing;

wherein:

after the brazing operation, the brazed areas are inspected on a grid of points by an eddy current probe connected to a frequency scanning eddy current system;

the signal obtained from the system at each inspected point is analysed by means of an algorithm which fits the signal with a calculated signal obtained from a simple model of the interaction between the probe and a multiple layer material, each layer of which is plane, homogeneous, and characterized by a value of electrical conductivity and positions of the interface with the adjacent layers, wherein the effect on the signal due to presence of a subsurface crack is approximated by a reduction of the electrical conductivity in a layer corresponding to the position of the subsurface crack in the thickness of the material;

from the algorithm estimates are obtained of the conductivity values and the positions of the interfaces of each of the layers of the model;

the presence of the subsurface crack is detected by comparing the estimated conductivity values obtained from the algorithm with reference values obtained in the same way on a defect-free component;

the ~~ligament and the~~ depth of the subsurface crack ~~are~~ is determined from the estimated positions of the interfaces between the model layers.

3. (Previously Presented) The method according to claim 1, wherein the method is applied to blades or vanes of gas turbines made from a nickel base superalloy as the article.

4. (Currently Amended) The method according to claim 1, wherein the distance of the subsurface crack from a surface and the depth of the subsurface crack ~~is~~ are determined.

5. (Currently Amended) ~~The method according to claim 4, wherein~~ A method of detecting and quantifying a subsurface crack in an article made of high strength non-magnetisable materials after using the article in a high temperature environment, the article exhibiting a crack on a surface, the method comprising:

(a) brazing the crack; and

(b) detecting and quantifying by means of a multi-frequency scanning eddy current system any subsurface cracks that remain beneath the brazed crack after the brazing;

wherein:

the distance of the subsurface crack from the surface and the depth of the subsurface crack are determined; and

(i) local variations of the thickness of the article in the range of penetration of the eddy currents, (ii) or the presence or fins or ribs on the inner surface of the article, or (iii) the presence of an inner layer of air between two airfoils, is suppressed as an interfering quantity in the measurement by including in the model one or more layers describing the geometric features of the article.

6. (Previously Presented) The method according to claim 1, wherein dependent on the measured extent of the subsurface crack after brazing, a decision

is made concerning the fulfillment of the serviceability of the quality requirements of the braze.

7. (Previously Presented) The method according to claim 1, wherein dependent on the extent of the remaining subsurface crack after brazing, estimated by the method, a decision is made concerning further usability of the article.

8. (Previously Presented) The method according to claim 1, wherein the surface of the crack is cleaned from oxides before applying the method.

9. (Previously Presented) The method according to claim 1, wherein a Flouride-Ion-Cleaning-Method is used for cleaning the surface before applying the process.

10. (Previously Presented) The method according to claim 1, wherein the surface is flat.

11. (Previously Presented) The method according to claim 1, wherein the surface is curved.

12. (Previously Presented) The method according to claim 1, wherein the surface is an external surface of the article.

13. (Previously Presented) The method according to claim 1, wherein the surface defines a cavity of the article.

14. (Currently Amended) A method of detecting and quantifying a subsurface crack in a blade or vane of a gas turbine made of high strength non-magnetisable materials after using the blade or vane in a high temperature environment, the blade or vane having a crack on a surface, the method comprising:

brazing the crack using a filler material having an electrical conductivity different from the electrical conductivity of the non-magnetisable materials; and

detecting and quantifying using a multi-frequency scanning eddy current system any subsurface cracks that remain beneath the brazed crack after the brazing.

15. (Previously Presented) The method according to claim 14, wherein the surface of the crack is cleaned from oxides before applying the method.

16. (Currently Amended) The method according to claim 14, wherein the distance of the subsurface crack from a surface and the depth of the subsurface crack ~~is~~ are determined.

17. (Previously Presented) The method according to claim 14, wherein the surface is flat.

18. (Previously Presented) The method according to claim 14, wherein the surface is curved.

19. (Previously Presented) The method according to claim 14, wherein the surface is an external surface of the blade or vane.

20. (Previously Presented) The method according to claim 14, wherein the surface defines a cavity of the blade or vane.